

In re Application of:  
Berlin et al.  
Application No.: 10/675,884  
Filed: September 29, 2003  
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PATENT  
Atty Docket No.: INTEL1320-1(P14241X)

**Amendment to the Drawings:**

The attached sheet of drawings show changes to Fig. 1, changing “IRRADIATE” to “TRANSMIT” in box 150. This replacement sheet replaces the original sheets filed with the application.

Attachment: One (1) Replacement Sheet  
One (1) Annotated Sheet Showing Changes

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**REMARKS**

Claims 15-30 and 33 have been canceled without prejudice or disclaimer. Claims 34, 36 and 37 have been amended. New claims 40-62 have been added. The specification and Figure 1 have been amended. Subsequent to the entry of the present amendment, claims 34-62 are pending and at issue.

Paragraphs [0006], [0009], [0032], [0034], [0040], [0043], [0045], [0056], [0058], [0061], [0062], [0063] and [0074], as designated in the application as filed (or paragraphs [0008], [0011], [0034], [0036], [0042], [0045], [0047], [0058], [0060], [0063], [0064], [0065] and [0076], as designated in the published application 2004/0142484) have been amended.

These amendments and new claims add no new matter as the claim language is fully supported by the specification and original claims.

**I. Double Patenting Rejection under 35 U.S.C. §101**

Claims 33-39 are provisionally rejected under 35 U.S.C. §101 as claiming the same invention as that of claims 31-37 of co-pending application No. 10/262,349.

Applicants note that a statutory type (35 U.S.C. §101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope (see MPEP 804.2).

Applicants have canceled claims 31-37 of co-pending application No. 10/262,349. Accordingly, Applicants request withdrawal of this rejection.

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**II. Drawings**

a. The Office Action objects to Figure 1, alleging it shows incorrect method steps. Figure 1 of the application is used to show various steps in identifying a sample of interest according to embodiments of the invention. Applicants have amended to specification to remove the word "method" associated with Figure 1. Applicants have also amended Figure 1, changing "IRRADIATE" to "TRANSMIT" in box 150. Accordingly, Applicants request that the objections to Figure 1 be withdrawn.

b. With regard to Figure 2, the Office Action alleges the figure should be labeled --Prior Art-- so as to identify it as a "well-known scheme in the art." Applicants respectfully disagree. Figure 2 shows embodiments of the present invention, including features in the amended and new claims, and therefore, Figure 2 is not prior art. Accordingly, Applicants request that this objection to Figure 2 be withdrawn.

The Office Action objects to the description of Figure 2 in the specification. Specifically, where it recites "an aqueous solution of a diluted nucleic acid derivative." Applicants have amended paragraph [0034] as suggested in the Office Action to recite "a diluted aqueous solution of a nucleic acid derivative". Accordingly, Applicants request that this objection to Figure 2 be withdrawn.

The Office Action further objects to Figure 2, stating that it should demonstrate the means to separate one molecule from such diluted solution and that no such means are shown in the figure. Applicants respectfully point out that the none of the present claims are directed to separation of one molecule from a solution. Accordingly, Applicants request that this objection to Figure 2 be withdrawn.

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b. With regard to Figure 4, the Office Action objects to the term “according to embodiments of the invention” in reference to Figure 4. Applicants have amended paragraphs [0009] and [0061] of the application to remove this term. Accordingly, Applicants request that this objection to Figure 4 be withdrawn.

### **III. Objections under 35 U.S.C. §112, First Paragraph**

The specification is objected to as allegedly not containing “a written description of the invention and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to practice the method in its best mode.”

The Office Action alleges that “no ways of preparing samples containing single molecules of DNA (not mentioning single molecules of nucleotides) are disclosed in the specification”. Applicants would like to point out that paragraph [0079] of the specification states “the system may include an exonuclease enzyme that breaks down a nucleic acid chain by removing single nucleotides one by one from the end of a chain.” In addition, other methods of producing single nucleotides by enzymatic or chemical means are well known to a person skilled in the art. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

The Office Action objects to the term “irradiating” on page 6, line 10 in paragraph [0032] used in “irradiating or transmitting the scattered radiation from the chamber. Applicants have amended paragraph [0032] to remove the term “irradiating”. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

The Office Action alleges that constructing the inventive spectroscopy system for performing the claimed method on Figures 5 and 6 requires preliminary knowledge of exactly the same parameters that are suppose to be obtained by the method, e.g., a wavelength of an

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inelastically scattered radiation of a molecule of interest" (page 16). The Office Action alleges this makes it unapparent how such a system can be constructed. Applicants respectfully point out that paragraph [0050] of the application describes how such modifications to the system may be accomplished to determine other wavelengths in the system. For example, a multi-layer dielectric mirror may contain layers that have a thickness that is proportional to a wavelength of an inelastically scattered radiation for a molecule of interest (e.g., a particular nucleotide) or set of molecules of interest (e.g., a set of nucleotides). Other thicknesses may be applied for other molecules and excitation radiations. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

The Office action alleges that is unclear CARS for detecting a single molecule requires a specific device or specific set-up. Applicants respectfully point out that there are no claims in the present application directed to single molecule detection. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

The Office Action alleges "the only other examples of real Raman experiments shown on Figures 16-21 refers SERS technique" and that the examples make it unclear if SERS is considered one of the embodiments of the instant methods. As noted in the present application on page 41, Example 3, the figures show the Raman emission spectra of various analytes of interest using the protocol of Example 2 in the application with the indicated modifications. As such, SERS may be considered part of the disclosed methods in the present invention. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

The Office Action alleges the Figure 4 refers to "Stokes Raman spectra for diluted aqueous solutions of four DNA nucleotides, according to embodiments of the invention" and it is unclear which specific embodiments are meant. Applicants have amended paragraphs [0009]

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and [0061] of the application to remove the term “according to embodiments of the invention”. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

The Office Action concludes that “the specification is written in such a vague language regarding the inventive features of methods and apparatus for detecting single molecules by Raman spectroscopy, that it is difficult apprehend the essence of the invention.” In view of the content of the present application as described above, the teachings of the prior art, and the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made, Applicants submit that any person skilled in the art would be able to practice the method in its best mode. Accordingly, Applicants respectfully request that this objection to the specification be withdrawn.

#### **IV. Rejections under 35 U.S.C. §112, First Paragraph**

A. Claims 33-39 are rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter not described in the specification in such a way as to enable one of skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants respectfully traverse this rejection.

An analysis of whether the claims under examination are supported by an enabling disclosure requires a determination of whether the disclosure contains sufficient information regarding the subject matter of the pending claims as to enable one skilled in the pertinent art to make and use the claimed invention. Applicants would like to point out that the enablement requirement does not require that the specification of an application explicitly teach each and every aspect of a claimed invention. In view of the information provided in the specification and the discussion above, Applicants submit that there is no *reasonable* basis for questioning the enablement of the pending claims and that the information provided in the specification, coupled

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with information known in the art, enable one skilled in the art to make or use the claimed invention without undue experimentation. In addition, Applicants have emended the claims to further clarify the invention. Accordingly, Applicants respectfully request that this rejection be withdrawn.

**V. Rejections under 35 U.S.C. §112, Second Paragraph**

Claims 33-39 are rejected under 35 U.S.C. §112, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection.

With regard to claim 36, the Office Action alleges it is not clear how to selectively resonate the characteristic. Applicants have amended claims 36 and 37 to remove the term “characteristic”, the claim now stating “selectively resonating inelastically scattered radiation”. Accordingly, Applicants respectfully request that this rejection be withdrawn.

The Office Action further alleges it is unclear how it is possible to resonate at a first frequency and then at a second frequency in the same resonance cavity. Applicants would like to point out that there are no claims at issue having first and second frequencies and respectfully requests that this rejection be withdrawn.

With regard to claim 37, the Office Action alleges it is not clear how to “selectively resonate” at an average wavelength. Applicants have emended the claim to remove the word “selectively”. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

The Office Action further objects to the step of “optionally identifying a particular derivative”, alleging it is unclear. Applicants have emended the claim to remove the word “optionally”. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

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**VI. Conclusion**

In view of the above amendments and remarks, reconsideration and favorable action on all claims are respectfully requested. In the event any matters remain to be resolved, the Examiner is requested to contact the undersigned at the telephone number given below so that a prompt disposition of this application can be achieved.

Applicants submits a check for the Request for Continued Examination fee of \$790.00 and do not believe any other fees are due in connection with this Response. However, The Commissioner is hereby authorized to charge any fees that may be associated with this communication, or credit any overpayment to Deposit Account No. 07-1896.

Respectfully submitted,

  
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## Annotated Sheet Showing Changes

**FIG. 1**

